



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,358	06/02/2006	Matthias Riedel	287524US8X PCT	3666
22850	7590	11/22/2011	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			TRAN, CON P	
			ART UNIT	PAPER NUMBER
			2614	
			NOTIFICATION DATE	DELIVERY MODE
			11/22/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/581,358	Applicant(s) RIEDEL ET AL.	
	Examiner CON P. TRAN	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 13-26 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 13-26 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/29/2011 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 13-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cromer et al. U.S. Patent Application Publication 20020159611 (hereinafter, "Cromer") in view of Freeman et al U.S. Patent 6970568 (hereinafter, "Freeman"), and further in view of Cohen et al. U.S. Patent Application Publication 20030031333.

Regarding **claim 13**, Cromer teaches *an audio system* (10, Fig. 1, see para [0011]; 100, Fig. 3, para [0024]) *providing a dynamic sound field adaptation to follow a listener position* (the user 12 may change locations with the remote control and have the sound system 100, Fig. 3 automatically reconfigure itself for the change of position, see para [0024]), the audio system comprising:

means (including radio transceiver 114, provides each of the speakers 112a-e with a radio transceiver 116a-e, and provides the audio receiver 104 with two fixed transceiver modules 106a-106b, para [0019]) *for tracking positions of a personal devices* (i.e., remote control 108, Fig. 3; the user 12 may change locations with the remote control and have the sound system 100 reconfigure itself for the change of position, see para [0024]) *to produce a current position of each personal device* (using a triangulation, para [0019]; in other words, at each different location, the personal device is considered different one, see Cromer para [0024]); and

means for re-calibrating a sound field an optimize speaker delays based on current positions of the personal devices (the remote control 108, Fig. 3 then reports these distances to the audio receiver 104, Fig. 3 which then uses the new distances to program the correct delays for the digital audio encoding system, para [0024]; automatically optimize speaker delays for a user's location, para [0014]; in other words, at each different location, the personal device is considered different one, see Cromer para [0024]).

Cromer discloses using triangulation to find a position or location (see Cromer, [0019]). However, Cromer does not explicitly disclose *means for determining relative positions of at least one sound emitting component of the audio system with respect to other sound emitting components of the audio system; real-time tracking of positions of the personal devices.*

Freeman discloses an apparatus and method for analyzing an electro-acoustic system (see Title) in which it is necessary to determine the relative position of the multiple loudspeakers; the relative position of the multiple loudspeakers may be determined by the relative time delay of the acoustic signals of each loudspeaker (see Freeman, col. 2, lines 1-5); the analysis system (10, Fig. 1) may perform the measurement in real-time (col. 4, lines 3-7, see Freeman).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the apparatus and method for analyzing an electro-acoustic system taught by Freeman with the an audio system of Cromer such that to obtain *a relative location determination means for determining relative positions of at least all sound emitting components of the audio system with respect to each other; and real-time tracking of positions of the personal devices as claimed order to minimize measurement time as suggested by Freeman in Abstract.*

However, Cromer in view of Freeman does not explicitly disclose *a sweet spot of the sound field based on the current positions of the personal devices; and means for detecting personal devices associated with at least one user.*

Cohen discloses a system and method for establishing a listening sweet spot within a listening space (see Cohen, para [0001]) including speakers (12, 13, 14, 15, 16) remote position sensor (27, Figs. 7, 8); the listener (11, Fig. 7) is holding a remote position sensor (27, Fig. 7); causing the sweet spot to shift from its original location to the listening position (para [0046], [0049], see Cohen); simultaneously transmit multiple "pings" from each of the multiple speakers, each with an unique frequency, phase or amplitude; the processing unit will be capable of identifying each of the multiple "pings" and simultaneously processing the location of each of the speakers ([0052], see Cohen; in other words, at each chosen sweet spot, the personal device is considered different one, see Cohen, para [0054]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the system and method for establishing a listening sweet spot taught by Cohen with the an audio system of Cromer in view of Freeman such that to obtain *a sweet spot of the sound field is placed at a current position of the personal device*; and *a personal device detection means for detecting a personal device belonging to a user* as claimed for purpose of optimization of three-dimensional audio listening as suggested by Cohen in Abstract.

Regarding **claim 14**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the means for determining, the means for detecting, the means for tracking, and the means for re-

calibrating each further include means for communicating via a network (i.e., digital interconnect format 28, Fig. 1, such as S/PDIF (IEC60958), see Cromer para [0011]).

Regarding **claim 15**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the network comprises at least in part implemented in a form of a wireless communication network (radio frequency, see Cromer para [0019]).

Regarding **claim 16**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein that the network comprises at least in part a wired communication network (i.e., S/PDIF (IEC60958), see Cromer para [0011]).

Regarding **claim 17**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the audio system includes physically-distinguished unit (i.e., known configuration position, see Cromer para [0024], each physically-distinguished unit of the audio system includes means for announcing membership attribute data representing an identity of physically-distinguished unit (i.e., known configuration position, see Cromer para [0024]).

Regarding **claim 18**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising:

means for arbitrating a location of the sweet spot among the current positions of the personal devices, according to a set of criteria (difference parameters measured, see Cohen, Fig. 10, para [0055]).

Regarding **claim 19**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 18. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the set of criteria is to includes criteria that positions the sweet spot for covering a maximum number of the personal devices (i.e., one is a maximum number, see Cromer, Fig. 3, para [0024], in other words, at each different overlapping sweet spot, the personal device is considered different one, see Cromer para [0024]).

Regarding **claim 20**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 18. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches audio system according to claim 18, wherein the set of criteria includes criteria that positions the sweet spot to a preferred personal device of the personal devices (i.e., the listener is holding a remote

position sensor, see Cohen, Fig. 7, para [0046], in other words, at each chosen sweet spot, the personal device is considered different one, see Cohen, para [0054]).

Regarding **claim 21**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for detecting acoustically interfering items that interfere with sound emitting components of the audio system (analysis of the received signal can provide information on room acoustics, reflective surfaces, see Cohen, para [0053]).

Regarding **claim 22**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for restoring preferred settings of the audio system (parameters stored by the manufacturer in the system's memory, see Cohen, para [0064]).

Regarding **claim 23**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising display means for displaying positions of sound emitting components of the audio system, and/or the current position of the personal devices, and/or a position of the current sweet spot

Art Unit: 2614

(display 54, Fig. 1, see Freeman, col. 10, lines 28-33; at each different sweet spot, the personal device is considered different one, see Cromer para [0024]).

Regarding **claim 24**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for switching between at least a mode in which the sweet spot follows a listener and a mode in which the sweet spot is kept in a fixed position (configuration button on the remote control, see Cromer, para [0025]).

Regarding **claim 25**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches wherein the means for tracking further includes means for extrapolating a most probable position of the personal device (i.e., from known configuration position, see Cromer para [0024]; sound manipulation also reshapes the sweet spot and restores the optimal listening experience, see Cohen para [0046]).

Regarding **claim 26**, this apparatus has similar limitations as the Claim 13. Therefore it is interpreted and rejected for the reasons set forth in the rejection of Claim 13.

Response to Arguments

4. With respect to claim objections, claim 25 has been amended. Accordingly, the rejection is withdrawn.

5. Applicants' arguments with respect to claims 13-26 have been considered but they are not persuasive.

Regarding Applicants' arguments in page 8 that Freeman also fails to disclose the claimed means for real-time tracking and therefore does not cure the above-noted deficiency in Cromer, examiner respectfully disagrees. As presented above in the Office Action, Freeman and further in view of Cohen teaches *real-time tracking of positions of the personal devices* (i.e., the analysis system 10, Fig. 1 may perform the measurement in real-time; col. 4, lines 3-7, see Freeman).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CON P. TRAN whose telephone number is (571)272-7532. The examiner can normally be reached on M - F (08:30 AM - 05:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor VIVIAN C. CHIN can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2614

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CPT/
November 17, 2011

/VIVIAN CHIN/

Supervisory Patent Examiner, Art Unit 2614